```
DDDDDDDDDDD     EEEEEEEEEEEEEEE  BBBBBBBBBBB      UUU         UUU     GGGGGGGGGGG
DDDDDDDDDDDD    EEEEEEEEEEEEEEE  BBBBBBBBBBBB     UUU         UUU     GGGGGGGGGGG
DDDDDDDDDDDD    EEEEEEEEEEEEEEE  BBBBBBBBBBBB     UUU         UUU     GGGGGGGGGGG
DDD         DDD EEE              BBB         BBB  UUU         UUU GGG
DDD         DDD EEE              BBB         BBB  UUU         UUU GGG
DDD         DDD EEE              BBB         BBB  UUU         UUU GGG
DDD         DDD EEE              BBB         BBB  UUU         UUU GGG
DDD         DDD EEE              BBB         BBB  UUU         UUU GGG
DDD         DDD EEEEEEEEEEE      BBBBBBBBBBBB     UUU         UUU GGG
DDD         DDD EEEEEEEEEEE      BBBBBBBBBBBB     UUU         UUU GGG
DDD         DDD EEEEEEEEEEE      BBBBBBBBBBBB     UUU         UUU GGG
DDD         DDD EEE              BBB         BBB  UUU         UUU GGG    GGGGGGGGG
DDD         DDD EEE              BBB         BBB  UUU         UUU GGG    GGGGGGGGG
DDD         DDD EEE              BBB         BBB  UUU         UUU GGG    GGGGGGGGG
DDD         DDD EEE              BBB         BBB  UUU         UUU GGG          GGG
DDD         DDD EEE              BBB         BBB  UUU         UUU GGG          GGG
DDD         DDD EEE              BBB         BBB  UUU         UUU GGG          GGG
DDDDDDDDDDDD    EEEEEEEEEEEEEEE  BBBBBBBBBBBB     UUUUUUUUUUUUUUU     GGGGGGGGG
DDDDDDDDDDDD    EEEEEEEEEEEEEEE  BBBBBBBBBBBB     UUUUUUUUUUUUUUU     GGGGGGGGG
DDDDDDDDDDDD    EEEEEEEEEEEEEEE  BBBBBBBBBBBB     UUUUUUUUUUUUUUU     GGGGGGGGG
```

```
  SSSSSSSS  TTTTTTTTTT  RRRRRRRR    UU      UU    CCCCCCCC  DDDDDDDD    EEEEEEEEEE  FFFFFFFFFF
  SSSSSSSS  TTTTTTTTTT  RRRRRRRR    UU      UU    CCCCCCCC  DDDDDDDD    EEEEEEEEEE  FFFFFFFFFF
SS              TT      RR      RR  UU      UU  CC          DD      DD  EE          FF
SS              TT      RR      RR  UU      UU  CC          DD      DD  EE          FF
SS              TT      RR      RR  UU      UU  CC          DD      DD  EE          FF
SS              TT      RR      RR  UU      UU  CC          DD      DD  EE          FF
  SSSSSS        TT      RRRRRRRR    UU      UU  CC          DD      DD  EEEEEEEE    FFFFFFFF
  SSSSSS        TT      RRRRRRRR    UU      UU  CC          DD      DD  EEEEEEEE    FFFFFFFF
        SS      TT      RR  RR      UU      UU  CC          DD      DD  EE          FF
        SS      TT      RR  RR      UU      UU  CC          DD      DD  EE          FF
        SS      TT      RR    RR    UU      UU  CC          DD      DD  EE          FF              ....
        SS      TT      RR    RR    UU      UU  CC          DD      DD  EE          FF              ....
SSSSSSSS        TT      RR      RR  UUUUUUUUUU    CCCCCCCC  DDDDDDDD    EEEEEEEEEE  FF              ....
SSSSSSSS        TT      RR      RR  UUUUUUUUUU    CCCCCCCC  DDDDDDDD    EEEEEEEEEE  FF              ....

LL              IIIIII      SSSSSSSS
LL              IIIIII      SSSSSSSS
LL                II      SS
LL                II      SS
LL                II      SS
LL                II      SS
LL                II        SSSSSS
LL                II        SSSSSS
LL                II              SS
LL                II              SS
LL                II              SS
LL                II              SS
LLLLLLLLLL      IIIIII    SSSSSSSS
LLLLLLLLLL      IIIIII    SSSSSSSS
```

```
;  0001  0     !----------------------------------------------------------------------
;  0002  0     !
;  0003  0     !       STRUCDEF -- DECLARATION FILE FOR DATA STRUCTURE DEFINITION
;  0004  0     !                   AND ACCESS MACROS USED IN THE VAX DEBUGGER
;  0005  0     !
;  0006  0     !----------------------------------------------------------------------
;  0007  0     !
;  0008  0     ! Version:      'V04-000'
;  0009  0     !
;  0010  0     !******************************************************************************
;  0011  0     !*                                                                            *
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;  0028  0     !*  SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.                   *
;  0029  0     !*                                                                            *
;  0030  0     !*                                                                            *
;  0031  0     !******************************************************************************
;  0032  0     !
;  0033  0     !
;  0034  0     !
;  0035  0     ! WRITTEN BY
;  0036  0     !       Bert Beander    August, 1981.
;  0037  0     !
;  0038  0     ! MODULE FUNCTION:
;  0039  0     !       This REQUIRE file contains all macros used in defining and accessing
;  0040  0     !       data structures (BLISS BLOCKs) in the VAX Debugger.  These symbolic
;  0041  0     !       names should always be used in BLISS Field-References.
;  0042  0     !
```

```
;  0043  0     !       DATA STRUCTURE DEFINITION AND ACCESS
;  0044  0     !
;  0045  0     !
;  0046  0     !
;  0047  0     !       The following macros must be used in defining field names for all data
;  0048  0     !       structures in the Debugger.  These macros supply the position, size, and
;  0049  0     !       sign-extension values when used in FIELD declarations for BLOCK and
;  0050  0     !       BLOCKVECTOR data structures.  The various generic forms (as specified by
;  0051  0     !       the letters in the names) are as follows:
;  0052  0     !
;  0053  0     !               A       Materialized address
;  0054  0     !               L       Longword
;  0055  0     !               W       Zero-extended word
;  0056  0     !               B       Zero-extended byte
;  0057  0     !               V       Zero-extended bit field
;  0058  0     !               SW      Sign-extended word
;  0059  0     !               SB      Sign-extended byte
;  0060  0     !               SV      Sign-extended bit field
;  0061  0     !
;  0062  0     !       The "A" form should be used whenever the field being defined is such
;  0063  0     !       that only the address of the field may be materialized in a structure
;  0064  0     !       reference; that is, fetch and store operations on the field are not
;  0065  0     !       valid.  An example of such a field is an ASCII string.
;  0066  0     !
;  0067  0     !       Each of the "V" and "SV" forms take one or two parameters.  The first
;  0068  0     !       parameter is the bit position within the longword (or byte) and the
;  0069  0     !       second is the field size in bits.  The second parameter is optional;
;  0070  0     !       if omitted, it defaults to 1.  Thus V_(5) means bit 5 while V_(5,3)
;  0071  0     !       means the 3-bit field starting at bit 5 and ending at bit 7.  Bit
;  0072  0     !       positions are counted from the low-order (least significant) end of the
;  0073  0     !       longword, starting at zero.
;  0074  0     !
;  0075  0     !       The following data structure picture shows the locations of the various
;  0076  0     !       fields that can be specified.  Note how the bit positions are numbered
;  0077  0     !       along the top of the illustration.
;  0078  0     !
;  0079  0     !
;  0080  0     !        3 3 2 2 2 2 2 2 2 2 2 2 1 1 1 1 1 1 1 1 1 1
;  0081  0     !        1 0 9 8 7 6 5 4 3 2 1 0 9 8 7 6 5 4 3 2 1 0 9 8 7 6 5 4 3 2 1 0
;  0082  0     !
;  0083  0     !       +-------------------------------------------------------------+
;  0084  0     !     0 ;                             L_                              ;
;  0085  0     !       +-----------------------------+-------------------------------+
;  0086  0     !     1 ;             W1_             ;              W0_              ;
;  0087  0     !       +---------------+-------------+---------------+---------------+
;  0088  0     !     2 ;      B3_      ;      B2_    ;      B1_      ;      B0_      ;
;  0089  0     !       +---------------+-------------+---------------+---------------+
;  0090  0     !
;  0091  0     !
;  0092  0     !***
;  0093  0     !
;  0094  0     MACRO
;  0095  0             A_      = 0, 0, 0 %,            ! Address of a longword
;  0096  0             ;
;  0097  0             A0_     = 0, 0, 0 %,            ! Address of byte 0
;  0098  0             A1_     = 8, 0, 0 %,            ! Address of byte 1
;  0099  0             A2_     = 16, 0, 0 %,           ! Address of byte 2
```

```
;    0100  0          A3_     = 24,  0,  0 %,        ! Address of byte 3
;    0101  0
;    0102  0          L_      =  0, 32,  0 %,        ! Longword
;    0103  0          W_      =  0, 16,  0 %,        ! Word, zero-extended
;    0104  0          B_      =  0,  8,  0 %,        ! Byte, zero-extended
;    0105  0
;    0106  0          W0_     =  0, 16,  0 %,        ! Word 0 zero-extended
;    0107  0          W1_     = 16, 16,  0 %,        ! Word 1 zero-extended
;    0108  0
;    0109  0          B0_     =  0,  8,  0 %,        ! Byte 0 zero-extended
;    0110  0          B1_     =  8,  8,  0 %,        ! Byte 1 zero-extended
;    0111  0          B2_     = 16,  8,  0 %,        ! Byte 2 zero-extended
;    0112  0          B3_     = 24,  8,  0 %,        ! Byte 3 zero-extended
;    0113  0
;    0114  0          V_(P,S) = P, %IF %NULL(S) %THEN 1 %ELSE S %FI, 0 %, ! Unsigned bit field
;    0115  0
;    0116  0          V0_(P,S) = P,      %IF %NULL(S) %THEN 1 %ELSE S %FI, 0 %, ! Bits in B0_
;    0117  0          V1_(P,S) = (P+8),  %IF %NULL(S) %THEN 1 %ELSE S %FI, 0 %, ! Bits in B1_
;    0118  0          V2_(P,S) = (P+16), %IF %NULL(S) %THEN 1 %ELSE S %FI, 0 %, ! Bits in B2_
;    0119  0          V3_(P,S) = (P+24), %IF %NULL(S) %THEN 1 %ELSE S %FI, 0 %, ! Bits in B3_
;    0120  0
;    0121  0          SW_     =  0, 16,  1 %,        ! Word, sign-extended
;    0122  0          SB_     =  0,  8,  1 %,        ! Byte, sign-extended
;    0123  0
;    0124  0          SW0_    =  0, 16,  1 %,        ! Word 0 sign-extended
;    0125  0          SW1_    = 16, 16,  1 %,        ! Word 1 sign-extended
;    0126  0
;    0127  0          SB0_    =  0,  8,  1 %,        ! Byte 0 sign-extended
;    0128  0          SB1_    =  8,  8,  1 %,        ! Byte 1 sign-extended
;    0129  0          SB2_    = 16,  8,  1 %,        ! Byte 2 sign-extended
;    0130  0          SB3_    = 24,  8,  1 %,        ! Byte 3 sign-extended
;    0131  0
;    0132  0          SV_(P,S)= P, %IF %NULL(S) %THEN 1 %ELSE S %FI, 1 %, ! Signed bit field
;    0133  0
;    0134  0          SV0_(P,S) = P,      %IF %NULL(S) %THEN 1 %ELSE S %FI, 1 %, ! Bits in B0_
;    0135  0          SV1_(P,S) = (P+8),  %IF %NULL(S) %THEN 1 %ELSE S %FI, 1 %, ! Bits in B1_
;    0136  0          SV2_(P,S) = (P+16), %IF %NULL(S) %THEN 1 %ELSE S %FI, 1 %, ! Bits in B2_
;    0137  0          SV3_(P,S) = (P+24), %IF %NULL(S) %THEN 1 %ELSE S %FI, 1 %; ! Bits in B3_
;    0138  0      !
;    0139  0      !
;    0140  0      ! END OF STRUCDEF.REQ



;                                        COMMAND QUALIFIERS

;       BLISS/LIBRARY=LIB$:STRUCDEF.L32/LIST=LIS$:STRUCDEF.LIS SRC$:STRUCDEF.REQ

; Run Time:          00:01.3
; Elapsed Time:      00:03.6
; Lines/CPU Min:      6412
; Lexemes/CPU-Min: 25740
; Memory Used:  12 pages
```

```
; Library Precompilation Complete
```

SSIK
LIS

DELTA
LIS

DELETE

DELEMAIN
LIS

SSITAB
LIS

DELETE
MAP

DELTA

DELTA
MAP

SSIW
LIS

SSIUW
LIS

PURGE
LIS

STRUCDEF
LIS

SSIDISP
LIS

S0DELTA
MAP

DELETE
REQ